Science Policy

St Mary's Church of England (A) Primary School keeps children safe by ensuring and promoting the safeguarding and welfare of all children in its care: all policies support the most current "Keeping Children Safe in Education Guidance" and "Safeguarding Policy", are fully consistent with the "Every Child Matters" agenda, and fully support the principles of equal opportunities for all.

This policy outlines the guiding principles by which this school will implement The National Curriculum in England: Science (2014) - in the context of the curriculum policy statement and its staffing, health & safety and equal-opportunities policies. It is reviewed periodically.

1. Our rationale for teaching science

Science is a body of knowledge built up through experimental testing of ideas. Science is also methodology, a practical way of finding reliable answers to questions we may ask about the world around us. Science in our school is about developing children's ideas and ways of working that enable them to make sense of the world in which they live through investigation, as well as using and applying process skills.

We believe that a broad and balanced science education is the entitlement of all children, regardless of ethnic origin, gender, class, aptitude or disability. Our aims in teaching science include the following:

- Preparing our children for life in an increasingly scientific and technological world.
- Fostering concern about, and active care for, our environment.
- Helping our children acquire a growing understanding of scientific ideas.
- Helping develop and extend our children's scientific concept of their world.
- Developing our children's understanding of the international and collaborative nature of science.

Attitudes

- Encouraging the development of positive attitudes to science.
- Building on our children's natural curiosity and developing a scientific approach to problems.
- Encouraging open-mindedness, self-assessment, perseverance and responsibility.
- Building our children's self-confidence to enable them to work independently.
- Developing our children's social skills to work cooperatively with others.
- Providing our children with an enjoyable experience of science, so that they will develop a deep and lasting interest and may be motivated to study science further.

Skills

- Giving our children an understanding of scientific processes.
- Helping our children to acquire practical scientific skills.
- Developing the skills of investigation - including observing, measuring, predicting, hypothesising, experimenting, communicating, interpreting, explaining and evaluating.
- Developing the use of scientific language, recording and techniques.
- Developing the use of ICT in investigating and recording.
- Enabling our children to become effective communicators of scientific ideas, facts and data.

2. Our teaching aims

- Teaching science in ways that are imaginative, purposeful, well managed and enjoyable.
- Giving clear and accurate teacher explanations and offering skilful questioning.
- Making links between science and other subjects.

Science is a core subject in the National Curricula *(for England, Wales and Northern Ireland).*

In England, it has a statement of the breadth of study per key-stage and the attainment target of 'working scientifically' with biology, chemistry and physics learning arranged into discrete units for each year group.

Our role is to teach 'working scientifically' through the contexts of the three main content areas. The breadth of study statement in the National Curriculum is concerned with issues such as the use of ICT, scientific language and health & safety.

Children in the foundation stage are taught the science elements of the foundation stage document through the Early-Learning Curriculum: Knowledge and Understanding of the World.

3. How science is structured through the school

Planning for science is a process in which all teachers are involved to ensure that the school gives full coverage of *(National Curriculum Science and science in the Foundation stage)*. Science teaching in the school is about excellence and enjoyment. We adapt and extend the curriculum to match the unique circumstances of our school.

KS1 and Foundation stage teachers should be teaching science for a minimum of ninety minutes each week.

KS2 teachers should be teaching science for a minimum of ninety minutes per week.

In KS 1/Foundation stage, a minimum of one third of lessons overall should include practical 'working scientifically'.

In KS2, a minimum of 50% of lessons overall should include practical 'working scientifically'.

St Mary's follows the Early Years Curriculum: Knowledge and Understanding of the World and The National Curriculum in England: Science programmes of study - Key stages 1 and 2.

The units of the National Curriculum are taught as described below, agreed after whole-staff discussion. This ensures progression between year groups and guarantees topics are covered. Teachers are expected to plan and resource their own lessons for each unit, they may choose to use planning and ideas from 'Hamilton Trust' and 'Twinkl' among other sources.

Generally, one unit may be taught in each half term.

Some units may be taught over a whole term.

The children are taught in mixed Reception/Y1/Y2; Y3/4 and Y5/6 classes.

Because of the mixed-age classes at St Mary's, some units will be taught out of their year group.

4. Our approach to science

The essential elements describing how science is taught at St Mary's are described below:

- We use ICT widely in science. Children are given the opportunity to practice science skills and enhance their presentation using carefully-chosen software.
- We use ICT for enquiry work, reasoning, photographic and video capture of images and activities.

- We use Seesaw as an online resource to store children's interactive work such as: recordings, explanations and experiments.
- We actively teach science skills, and reinforce learning with selected enquiry simulations.
- We encourage children to ask and answer their own questions as far as practicable.
- We use homework to support school and class activities. This relates to the school's overall homework policy.
- We use cross-curricula links to science with, for example, maths and design and technology units.
- We develop science informally through school visits and other out-of-school activities.

5. Equal opportunities in science

Science is taught within the guidelines of the school's equal-opportunities policy.

- We ensure that all our children have the opportunity to gain science knowledge and understanding regardless of gender, race, class, physical or intellectual ability.
- Our expectations do not limit pupil achievement and assessment does not involve cultural, social, linguistic or gender bias.
- We aim to teach science in a broad global and historical context, using the widest possible perspective and including the contributions of people of many different backgrounds.
- We draw examples from other cultures, recognising that simple technology may be superior to complex solutions.
- We value science as a vehicle for the development of language skills, and we encourage our children to talk constructively about their science experiences.
- In our teaching, science is closely linked with English and Mathematics.
- We recognise the particular importance of first-hand experience for motivating children with learning difficulties.
- We recognise that science may strongly engage our gifted and talented children, and we aim to challenge and extend them.
- We exploit science's special contribution to children's developing creativity; we develop this by asking and encouraging challenging questions and encouraging original thinking.

6. Assessment and recording in science

We use assessment to inform and develop our teaching.

- We assess for learning (AfL). Children are involved in the process of self-improvement, recognising their achievements and acknowledging

where they could improve. Activities during, and at the end of, each topic record achievement and celebrate success.

- We mark work positively, making it clear verbally, or on paper, where the work is good, and how it could be further improved. Assessment records are reviewed annually.
- The school science coordinator monitors progress through the school by sampling children's work. Children who are not succeeding, and children who demonstrate high ability in science, are identified.
- St Mary's uses teacher assessment wholly to assess learning. Equally important is the continuous assessment of children's work, much of which is informal. This assessment is used to inform teaching throughout the school.
- The Class 1 teacher assesses children's level of attainment at the end of the KS1 programme of study. With children assessed as 'met' or 'have not met' end of KS1 expectations. This teacher assessment is based on work samples and first-hand experiences within the class, whilst year 2 undertake end of unit assessments.
- The Class 3 and 4 teacher assesses children's level of attainment at the end of the KS2 programme of study with an end of unit assessment linked to the lessons they have recently covered. With children assessed as 'met' or 'have not met' end of KS2 expectations. This teacher assessment is based on work samples, assessments and first-hand experiences within the class.